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Subject: Environmental Defense comments on the Di-tertiary (C9-C12) Alkyl Polysulfides Category

(Submitted via Internet 9/14/04 to oppt.ncic@epa.gov, hpv.chemrtk@epa.gov, boswell.karen@epa.gov, chem.rtk@epa.gov, lucierg@msn.com and Santav@cpchem.com)

Environmental Defense appreciates this opportunity to submit comments on the robust summary/test plan for the Di-tertiary (C9-C12) Alkyl Polysulfides Category.

The test plan and robust summaries for the Di-tertiary (C9-C12) alkyl polysulfides category (DTAPC) were submitted by Chevron Chemical Company and ATOFINA Chemicals Inc. The information contained in the submission was informative and consistent with the objectives of the HPV program.

The proposed category encompasses four CAS numbers; 68525-16-1, 68583-56-2, 31565-23-8 and 68425-15-0. All members of the category are present in a range of mixtures and differ only in the length and degree of branching of the alkyl side chains and sulfur atom chain length. According to the sponsors, there are no differences in functional groups between category members. We find the justification for category formation to be convincing.

The polysulfide members of this category, according to the sponsors, are used as reagents for catalyst sulfidation in metalworking and metal processing industries, including for nickel, molybdenum, cobalt and tungsten. They are also used in the formulation of lubricant additives, including gear oil lubricants. No information is provided on amounts of the polysulfides present in the final products in which they are used, nor on the magnitude of environmental releases or opportunities for human exposure. Data contained in the robust summaries indicate that DTAPC members are resistant to biodegradation and preferentially partition into the soil because of poor water solubility. These properties suggest that the polysulfides accumulate in the environment if they are released from industrial facilities, so this submission would be more informative if the sponsor could provide available data on environmental releases and/or environmental monitoring.

The sponsors did an excellent job in summarizing available data on DTAPC members, and additional studies are proposed to fill the remaining gaps for SIDS endpoints. Specifically, studies are planned for physical and chemical endpoints as well as a rodent 90-day study with a focus on reproductive endpoints on di-tertiary nonyl polysulfide. We agree with the proposed studies, but we recommend some modifications be made to the 90-day study. In particular, we note that the existing repeat dose study did not include a comprehensive histological evaluation. We, therefore recommend that such a comprehensive evaluation be conducted in addition to the focus on the male and female reproductive tracts. We also note that the sponsors did not identify the route of exposure for the 90-day study, nor was information

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provided on dose selection procedures. We recommend the oral route of exposure and that at least three doses be used, with the highest one close to the maximally tolerated dose (MTD).

Solubility limitations of DTAPC members preclude the conduct of meaningful aquatic toxicity studies when routine methods are used. Since the polysulfides partition into the sediment, are there not alternative studies that could be done to assess the toxicity to organisms that dwell in the sediment?

Are the polysulfides metabolized by living organisms and are they bioavailable to mammals following ingestion? If data on these questions are available, they should be included in a revised test plan as they would be helpful in understanding the basis for the results observed in toxicity studies.

Thank you for this opportunity to comment.

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